AMC
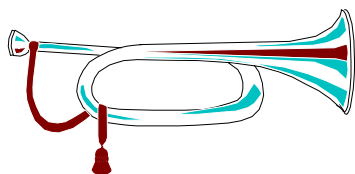## CO$T BU$TER$ BUGLE
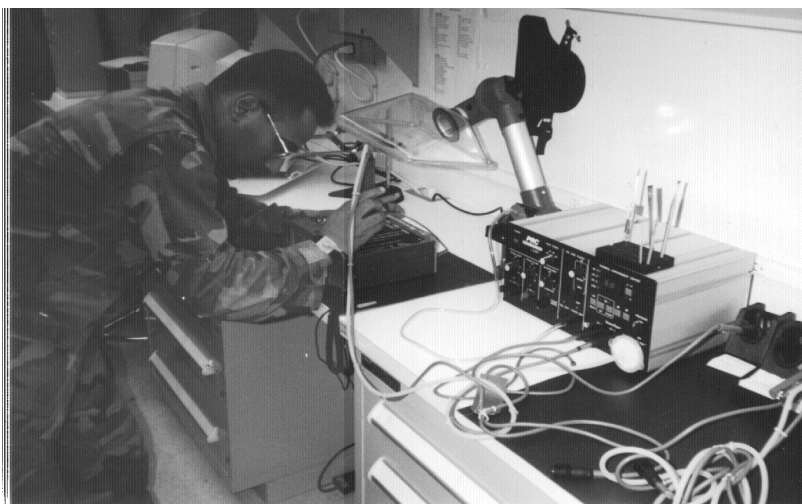
AMCOM Moves Aggressively to Meet Cost Reduction Challenges

The U.S. Army Aviation and Missile Command (AMCOM) is aggressively moving to meet our cost reduction challenges while looking for new opportunities to improve the quality of life for the soldier in the 21st century. AMCOM continues to meet mission requirements with smaller budgets, and to seek more efficient ways of doing business. A number of positive initiatives are on-going to train and support soldiers and units, such as the Electronic Repair Shelter, the Soldier's Portable On-System Repair Tool, and the Reengineering Automated Travel System.

Electronic Repair Shelter (ERS). The AMCOM Program Manager (PM) for Test, Measurement and Diagnostic Equipment (TMDE) has developed a repair van that can economically test and repair circuit cards and electronic components in the field. ERS team leader, Mr. Ray Morgan, an engineer assigned to the PM, TMDE, and Mr. Randy Caldwell, a contractor, designed the ERS. The ERS is a mobile, environmentally protected van which enables technicians to diagnose and repair Printed Circuit Boards (PCB) using a Commercial-Off-the-Shelf (COTS) card tester and soldering and repair work stations. The ERS acquisition process emphasized the integration of commercially available hardware into a refurbished Army trailer to field equipment as soon as possible and at minimal cost. The Systems Reuse Management Office fabricated the first prototype and engineering development model at Redstone Arsenal, Alabama. The ERS prototype is undergoing a user's assessment at the 190th Maintenance Company, Fort Hood, Texas. Two senior NCOs from the Ordnance Missile and Munitions Center and School, Redstone Arsenal, who attended contractor training on the ERS components, have trained the 190th personnel. Repairs documented in the user assessment confirm an Army Audit Agency finding that repair of circuit cards in the field can save money. Based on repairs accomplished during the user assessment, the 190th has invested less than $3K in repairs, and saved more than $220K, the alternative cost of requisitioning replacement cards.

Cost Busters Bugle Volume 5 focused on Efficiency efforts at ATCOM. Since then, ATCOM and MICOM have been combined to form AMCOM. This issue focuses on those efforts begun at MICOM before the consolidation.
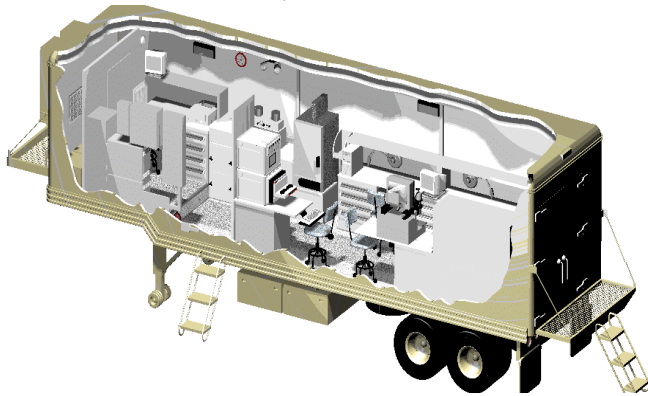
The following is adapted from an article titled "Soldiers Keep Circuits Alive in the Field," by C.S. Albright, 13th COSCOM Public Affairs, which appeared in the 19 August 1996 issue of the Fort Hood Sentinel:

CPL Ernesto Barresas stuck his hands into a machine that looked much like a premature infant incubator in a maternity ward. The cool air inside the closed container rushed over an Abrams tank computer circuit card as Barresas sandblasted the protective coating away with an electronic wand. The electronics repair specialist was one of ten Fort Hood soldiers being trained in a one-of-a-kind van being field tested at Fort Hood. As the Army rapidly upgrades the technology used to get soldiers, supplies and equipment to battlefields and related operations, the necessity of repairing computerized machines, weapons and vehicles in the field has increased. The 190th Maintenance Battalion's Intercept Electronic Warfare unit is sponsoring training for soldiers from various units to diagnose and repair the internal hardware of computers in a field environment. Computerized circuitry can be found in trucks, tanks, helicopters, multiple launch rocket systems, radios, radar systems and other warfighting equipment.

The Electronics Repair Shelter 001 is the prototype where soldiers can repair circuit cards down to the microchip level in a field environment. Trailer refurbishment and COTS integration was performed by Tec-Masters Inc. of Huntsville, Alabama., under the management of PM, TMDE, and the ERS Team. The ERS is capable of being powered from commercial or tactical generator sources, and is moved by a standard Army 5-ton truck. Soldiers-technicians have been repairing internal components of computers for years. What's new here is that technicians will be able to complete these repair actions in the field instead of sending them back to the rear or depot for maintenance action. "Right now, if we have a bad computer chip, we replace the entire circuit card, and that could cost $14K instead of replacing a defective chip for $30.00," said CPL Colin Clark of the 27th Main Support Battalion, 1st Cavalry Division. "This will keep the warfighters fighting and save repair dollars." MSG. Willie Harper, of the New Systems Training Office, Combined Arms Support Command, at Fort Lee, Virginia, said, "the senior NCO is monitoring and evaluating the training of the soldiers for the next 10 weeks. This will save money and make a more efficient Army." SSGs Arnold Bolduc and Masao Williams, Senior Instructors at the Ordnance Missile and Munitions Center and School, traveled to Fort Hood, Texas to serve as trainers. They arrived at Fort Hood in early August 1996 and stayed through mid-October when the van was actually deployed to a field exercise. Those undergoing the 10-week training program were integrated into the routine work schedule for repair to support the 190th Maintenance Battalion, which supports III Corps computerized and electronic warfare vehicles, machines and weaponry. They will then chain teach and train their peers within their units.

The manufacturer will also document comments from the trainers and soldiers so that updated changes can be incorporated before the projected 16 ERS vans are distributed to various general support, training, and program support units. "This is new equipment, and it's a good chance to get to know this technology and have an input on it's application before it gets to the field," Clark said.

Inside the windowless, cool trailer are the tools and equipment the technicians need to diagnose problems and perform repairs. They have two work stations with soldering tools, spare circuitry, cards, filters, gold plating mixes and various general tools. Once the card is dropped off, the technicians connect the card to a computerized circuit tester, much like what an auto mechanic might use. The diagnostic equipment is designed for easy use. A push-button screen on the ManTech VTS-1000 allows the technician to quickly locate any problem. The machine provides a road map to circuits, breaking down the components to find the "address" or source of the trouble. If the technician has a problem, he can refer to computerized records with thousands of pages of information at his fingertips. Once the problem is isolated, the protective coating can be blasted away and the defective chip replaced. The van complies with the Occupational Safety and Health Administration guidelines for general safety and proper ventilation. The fume extraction system eliminates chemical fumes created by soldering.

The prototype ERS continues to perform a two-fold purpose at the 190th at Fort Hood. It continues to collect, test, and document repair data that is required for the ERS program and it also continues to save and avoid PCB test and repair cost for the III Corps. Based on the results of the initial user assessment, III Corps estimates that one ERS at Fort Hood, under fully loaded conditions, can generate annual savings and cost avoidance of $2.6M. The first equipped ERS 001 is scheduled for field exercise in October 1998.

POC: SSG Arnold J. Bolduc or Mr. Masao Williams, DSN: 788-9666

Soldier's Portable On-system Repair Tool (SPORT). Soldiers will use SPORT to diagnose problems on weapons systems and to display electronic technical manuals in the field. SPORT consists of two main components: a portable computer called a Controller/Diagnostic Aid (CDA) and a specialized docking station called an Instrumentation Expansion Chassis (IEC). The SPORT is up-to-date with the latest computer technology. The CDA is a 100 MHz Pentium portable with a built-in 4x CD-ROM drive, 32MBof RAM, a 720MB hard drive and a Type III PC Card. The IEC provides for three additional card slots. The CDA portable runs Microsoft Windows 95 and weighs 9 pounds. The SPORT will support aviation, ground combat, and missile weapon systems. According to Ms. Leah Stephens, an electronics engineer with TMDE, the SPORT, weighing less than one-third of current TMDE devices, provides a more convenient and accessible tool that can be used in such cramped conditions as tank turrets and aircraft cockpits. The SPORT also allows viewing of electronic

documentation and IETMs, Stephens said. The IETMs will enable technicians to navigate technical manuals through hypertext links. The first unit equipped date is January 1998.
POC: Ms Leah D. Stephens, DSN 645-6360

Reengineered Automated Travel System (RATS). Mission travel for the Department of Defense (DOD) is a big business. There were 8.2 million temporary duty travel (TDY) vouchers filed in FY94 from military and civilian members stationed around the world. In January 1995, DOD started an effort to streamline TDY processing. DOD conceptualized a seamless, paperless, user friendly system which would meet the mission needs of travelers and managers, reduce the cost of travel, provide superior customer service, and treat travelers as honest professionals. In June 1995, MICOM was selected as a pilot site to test the new concept. Pilot sites were given "free rein" on how they would test the new rules. A team supported by the Corporate Information Center, Command Analysis Directorate, Resource Management, the Transportation Office, and the Defense Finance and Accounting Service was formed to meet DOD's challenge. From this effort the RATS emerged.


RATS is a Windows-based user-friendly application that will run on either PCs or MACs. The traveler enters travel request information, which is routed electronically to the travel office, which makes tentative reservations and enters the associated costs. This information is routed to the Approving Official (AO) for approval. Upon approval, all information automatically updates a Trip Record, which replaces both the Travel Order (DD1610) and Settlement Voucher (DD1351-2). After the travel is performed, the traveler enters actual expenses on the Trip Record and sends it to the AO. After AO approval, the Trip Record is routed to DFAS for payment. No receipts are sent to DFAS. The AO reviews all lodging and other receipts (for expenses $75or over) and returns them to the traveler for retention. Although RATS is still being modified, efficiencies are evident. The old travel process had 51 steps; RATS has 20 steps. The average process (hands-on) time for the old system was 10 hours; RATS is 45 minutes. The average post travel cycle time (time required for the traveler to generate a DD1351-2, obtain approval, and receive reimbursement) under the old system was 7 days; RATS is 2.25 days. Also, RATS can make payments directly to the American Express Credit Card Company. Early testing of the program began in February 1996; full-blown testing has been underway since June 1996. There are currently 2,500 users on RATS. AMCOM's program is totally developed by the government; other sites were commercially developed. AMCOM received the Secretary of Defense Award for Reengineering Excellence for RATS. Considering the DOD travel budget is a multi-billion dollar operation, the potential for RATS appears favorable. The Corps of Engineers is waiting for approval from DA/DOD to include RATS in their Financial Management System. At fiscal year end, AMCOM received $120K from HQDA to continue the RATS effort.
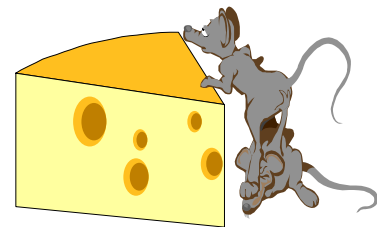
## ****SUCCESS STORIES****
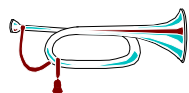
Long Distance Demo

The first on-line demonstration of an AMCOM networked application using the videoteleconference (VTC) facility was conducted recently during a point-to-point VTC with AMC Headquarters. By providing network drops and technical support, Corporate Information Center personnel avoided travel for the programming team. The successful demo of RATS used the VTC camera focused on a computer screen. Resolution was good but may be improved in the future by using a scan converter to bypass the camera. Additional travel savings are expected through the continued use of application demonstrations.
POC: Ms. Lorraine Young
Phone: DSN 788-8197
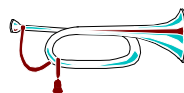
Acquisition Saves Time and $s

AMCOM awarded a sole source contract to Hughes Technical Services Company valued at over $1.2M for repair parts in support of TOW II system requirements without requiring the contractor to submit cost and pricing data for evaluation by the Government. The award was made in only 100 days of administrative lead time, to include only 55 days in the procurement buy team. The contractor proposed and the government accepted reconditioned assets for fulfillment of this requirement. Savings of approximately 40 percent and reduced production lead time of 12 months were achieved.
POC: Ms. Dianne Landtroop
Phone: DSN 746-9855
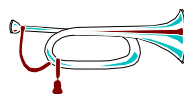
Alpha Streamlining Approach

Applying the modified ALPHA streamlining approach in the use of historical touch labor on a $47M contract contributed to reducing processing time to half of what is typically experienced for such sizable actions. The contract went to Hughes Missile Systems Company, Tucson, Arizona for a quantity of 3,231 TOW 2A missiles (FMS). In addition, this was the first TOW production buy to use performance specifications instead of a Level III Technical Data Package (TDP).
POC: Ms. Julia Marsh
Phone: DSN 746-7065
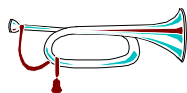
PATRIOT Integrated Diagnostic Support System (IDSS)

The Integrated Diagnostic Support System (IDSS) is a Force XXI enabler that helps digitize the PATRIOT maintainers' slice of the battlefield. Digital technologies are integrated and allow the maintainer to perform tasks normally beyond the scope of his training and/or level of maintenance. This integration will also allow return of the weapon system to an operational condition more quickly. At the fire unit, monitors detect faults and automatically access diagnostic/repair procedures in electronic technical manuals and expert systems. In the event the organizational maintainer is unable to effect repairs, help desk-type support for remote diagnosis and adjustments is available via digital communications to a support center. If the condition cannot be corrected, experts (regardless of location) may be consulted. Experts located at the contractor's facility have the capability to duplicate faults, perform tests, diagnose, and make adjustments.

IDSS is the logical extension of the IDS Demonstration (IDSD) sponsored by the Department of Defense from 1993-1996. Using PATRIOT as a test bed, this technology concept demonstration's findings indicated that an IDSS has the potential to reduce the number of highly skilled personnel, the associated training base, and the support system. Operationally, results indicate potential improvements in operational availability through reduction in mean time to repair and decreased administrative delay time. Improved data collection may allow for better engineering analysis of system problems and better engineering solutions. Other operational costs may be reduced through a combination of a reduced need to send experts to the field and an increase in the ability of on-site personnel to perform difficult tasks or tasks the personnel have not been trained to perform.

The PATRIOT Project Office is refining requirements and designs and will conduct an integrated test and evaluation of the IDSS system in an active PATRIOT Battalion in FY98. This evaluation will provide informed decisions regarding objective system capability mix and location, as well as processes and procedures. Findings may be used for force development decisions and to better assess potential benefits.
POC: LTC Harry S. Hamiltom
Phone: DSN 645-3548
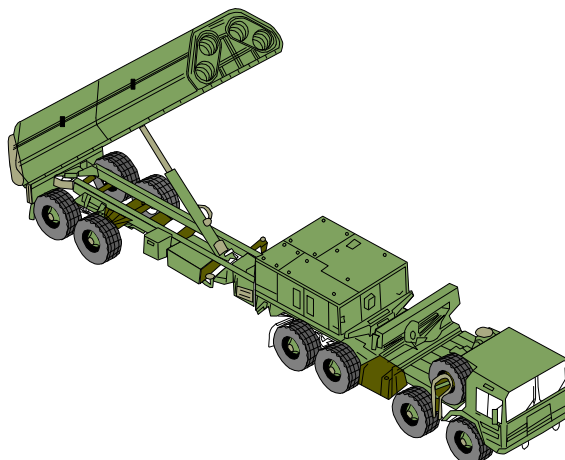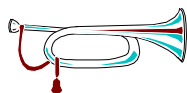
Procurement Lead Time Reduction

One quarter of the $1.8B POM promise is to be realized via procurement lead time reductions at the MSCs, and AMCOM is doing it's part. In the past six years, AMCOM achieved a combined 72% reduction (Aviation – 63%, Missile – 87%). To meet the FY98 AMC directed goals, administrative lead time (ALT) must be reduced 28% for the aviation commodity and 16% for the missile commodity. Corresponding reduction requirements for production lead time (PLT) are 45% (aviation) and 28% (missiles). These reductions will be attained through the continued team efforts of multiple AMCOM organizations including the Research, Development, and Engineering Center, Integrated Materiel Management Center, and the Acquisition Center.
POC: Mr. John La Falce
Phone: DSN 746-7672
Mr. Terry L. Hendrickson
Phone: DSN 788-9171
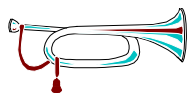
JTUAV Emergency Batteries

The FY97 AMCOM Supply Management Army (SMA) Operating and Support Cost Reduction (OSCR) Program funded the redesign of the Joint Tactical Unmanned Arial Vehicle (JTUAV) Air Vehicle Emergency Batteries. The initiative proposes to identify any existing batteries cataloged in the DOD supply systems that meet this requirement and revise specifications as appropriate, resulting in immediate savings and reducing the need to have a mobile shop on the battlefield. The total amount funded is $85K and projected savings are approximately $1.16M. The savings to investment ratio is 9 to 1, and the payback period will begin within 1 year of implementation. Funds have been obligated and the reengineering task is underway.
POC: MAJ Mary (Mimi) Finch
Phone: DSN 788-4310

Work Groups End Duplication
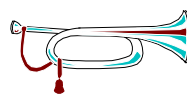
An implemented idea established formal working groups among THAAD, PATRIOT, and Corps SAM Project Offices to prevent duplicate testing of similar electronic devices. This effort will maximize the use of funds during the test phase and provide the ability to learn from each other's successes and mistakes. The work group designed a stockpile reliability computer program that can be used to develop and optimize missile age characteristics in the stockpile and reduce costs.
POC: Mr. Mohammad Dansesh
Phone: DSN 645-3656

Look for the AMC Cost Busters on the World Wide Web at
www.amc.army.mil/amc/rm/costbust.html.